Stoller
Hanford Office

DOE-EM/GJ1237-2006

299-W19-101 (C4966)
Log Data Report

Borehole Information:

Borehole: 299-W19-101 (C4966)			**Site:** 216-U12 Crib		
Coordinates (WA St Plane)		**GWL[1] (ft) :** 258.5		**GWL Date:**	8/23/05
North	**East**	**Drill Date**	**Ground Level Elevation**	**Total Depth (ft)**	**Type**
Not available	Not available	08/05	Not available	381	Becker

Casing Information:

Casing Type	Stickup (ft)	Outer Diameter (in.)	Inside Diameter (in.)	Thickness (in.)	Top (ft)	Bottom (ft)
Steel	2.7	6.24	6.0	0.12	2.7	381
Steel	2.25	9.0	8.0	0.50	2.25	381

Borehole Notes:

The Becker drilling system uses a dual-wall casing. Air is forced down the annulus and cuttings are returned inside the inner casing. Total wall thickness is 0.620 in., increasing to 1.115 in. at the casing joints that occur at 10-ft intervals. The casing dimensions are derived from published values for Becker drill casing. Logging data acquisition is referenced to the ground surface.

Logging Equipment Information:

Logging System:	Gamma 4E		**Type:**	SGLS (70%) SN: 45TP22010A
Effective Calibration Date:	12/21/04	**Calibration Reference:**	DOE/EM-GJ854-2005	
		Logging Procedure:	MAC-HGLP 1.6.5, Rev. 0	

Spectral Gamma Logging System (SGLS) Log Run Information:

Log Run	1	2 Repeat	3	3	
Date	08/23/05	08/24/05	08/24/05	08/25/05	
Logging Engineer	Pope	Pope	Pope	Pope	
Start Depth (ft)	381.0’	326.0’	286.0’	106.0’	
Finish Depth (ft)	287.0’	287.0’	105.0’	0.0’	
Count Time (sec)	50	50	50	50	
Live/Real	R	R	R	R	
Shield (Y/N)	NA	NA	NA	NA	
Sample interval (ft)	1.0 ft	1.0 ft	1.0 ft	1.0 ft	
ft/min	1.0 ft	1.0 ft	1.0 ft	1.0 ft	
Pre-Verification	DE871CAB	DE881CAB	DE881CAB	DE891CAB	
Start File	DE871000	DE881000	DE881040	DE891000	

Log Run	1	2 Repeat	3	3	
Finish File	DE871094	DE881039	DE881221	DE891106	
Post-Verification	DE871CAA	DE881CAA	DE881CAA	DE891CAA	
Depth Return Error (in.)	Low 3.0	NA	Low 4.0	Low 1.0	
Comments	Fine-gain adjustment made at bottom of borehole and after file 152.	Repeat section.	Fine-gain adjustment at 166.0 ft, after file 159.	No fine-gain adjustment made.	

Logging Operation Notes:

- Pre- and post-survey verification measurements were acquired in the Amersham verifier, SN 115.
- A centralizer was installed on the sonde.
- Maximum borehole depth logged was 381.0 ft.

Analysis Notes:

Analyst:	Pope	Date:	07/07/06	Reference:	GJO-HGLP 1.6.3, Rev. 0

Pre-run and post-run verifications for the logging system were performed before and after data acquisition. Acceptance criteria were met for all verification spectra.

Casing thickness (additive for the 6- and 9-in. casings) is approximately 0.620 in. The combined thickness at casing joints is 1.115 in. This thickness results in a significant reduction in gamma activity detection as the detector passes by a casing joint. However, it is not practical to correct individual data points for the effect of casing joints. The influence of the thick joints is apparent on the total gamma where reduced count rates are exhibited at approximately 10-ft depth intervals.

SGLS spectra were processed in batch mode using APTEC SUPERVISOR to extract the total gamma count rate from individual files. No corrections are made for dead time, casing, or water.

Log Plot Notes:

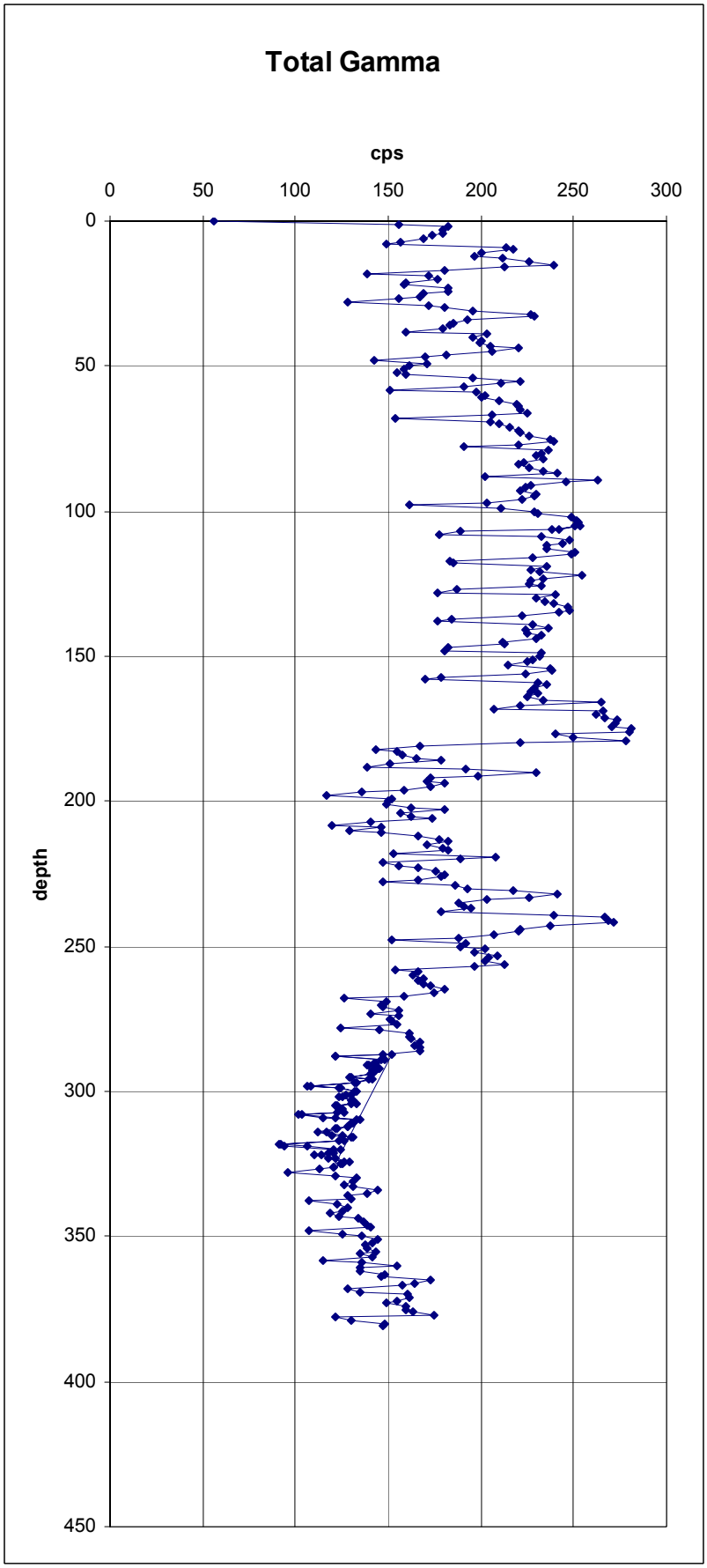
Log plots are provided for the total gamma and dead time. A repeat log section is also presented.

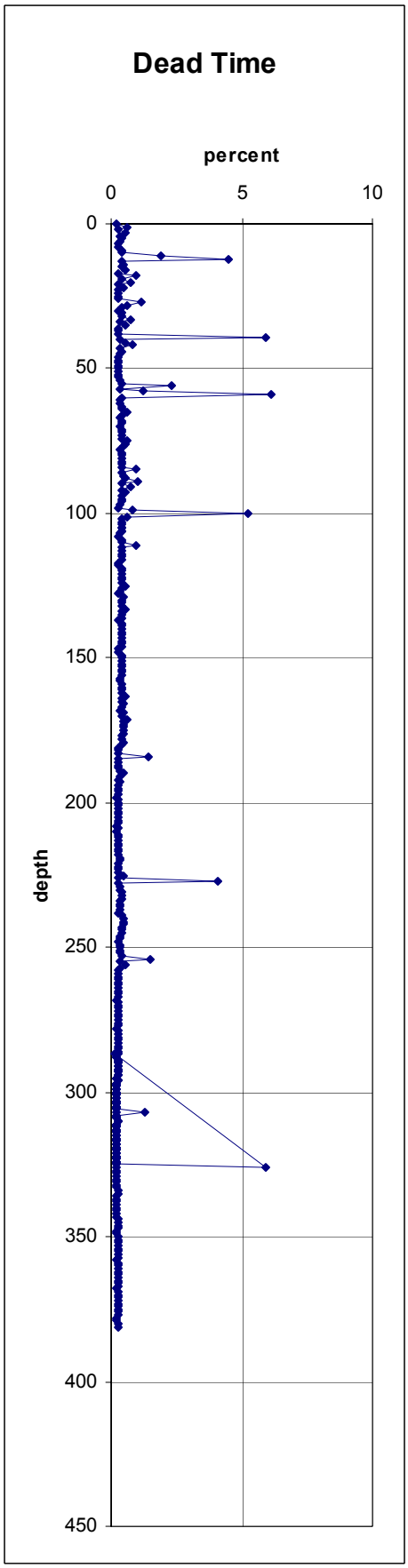
Results and Interpretations:

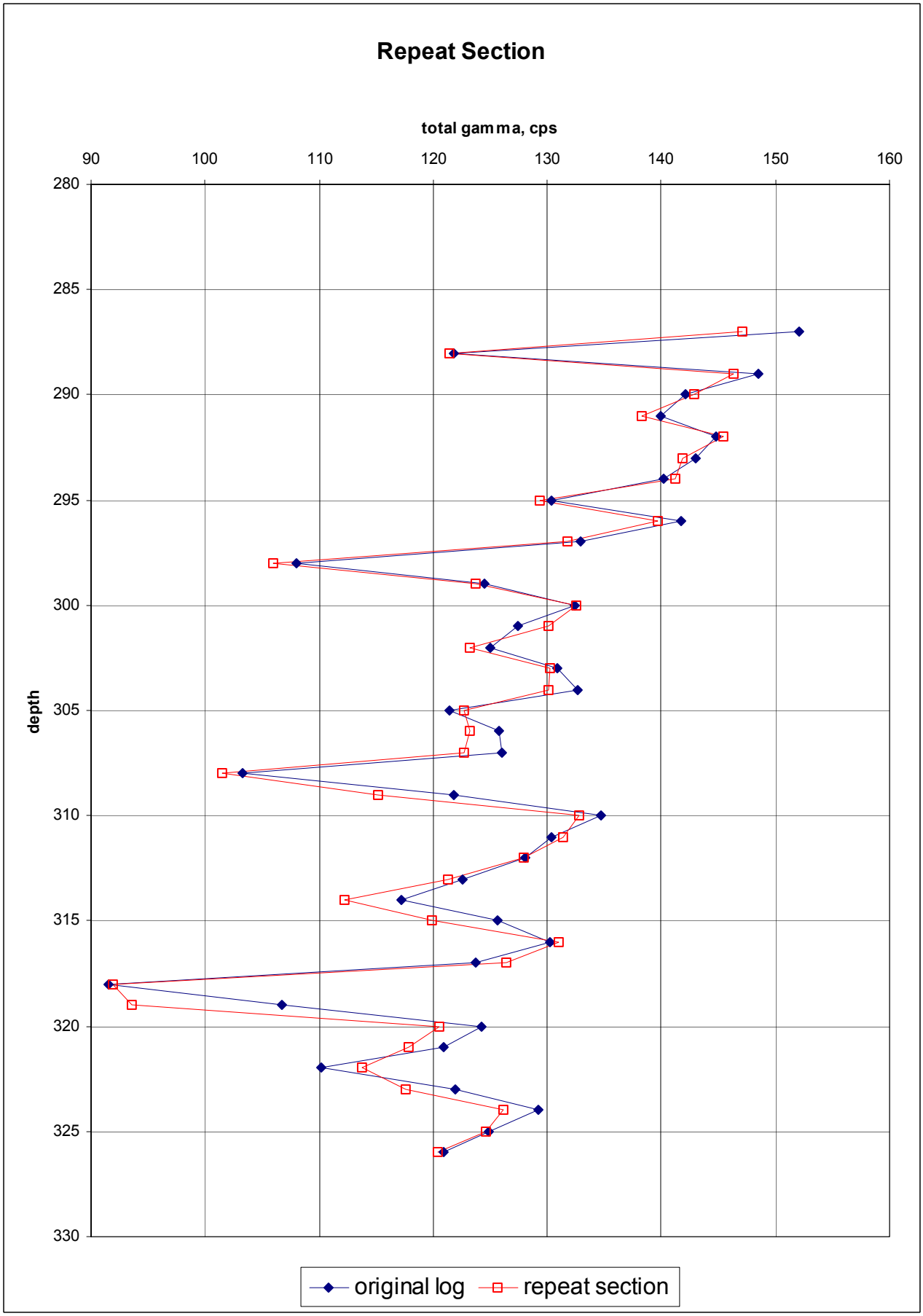
A decrease in gamma activity occurs at each casing joint, where the increase in wall thickness results in greater attenuation of gamma activity. No anomalous gamma activity was observed. This observation suggests no significant concentrations of man-made radionuclides.

The repeat section indicated good agreement of the total count rate.

[1] GWL – groundwater level
[2] N/A – not applicable


Total Gamma
cps
0
50
100
150
200
250
300
depth
0
50
100
150
200
250
300
350
400
450


Dead Time
percent
0
5
10
depth
0
50
100
150
200
250
300
350
400
450


Repeat Section
total gamma, cps
90
100
110
120
130
140
150
160
depth
280
285
290
295
300
305
310
315
320
325
330
original log
repeat section